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U.S. Department of the Interior • U.S. Geological Survey

# MINERAL INDUSTRY SURVEYS

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## VANADIUM IN APRIL 1997

The total reported consumption of vanadium in April increased 7% from that reported for March.

U.S. ferrovanadium prices during April ranged from \$8.80 to \$9.20 per pound vanadium content compared with \$8.60 to \$9.20 in March. The range for European ferrovanadium prices

was \$18.40 to \$19.50 per kilogram vanadium content in April. In March European ferrovanadium prices ranged from \$19.00 to \$19.50. For vanadium pentoxide, the April range was \$3.75 to \$4.05, while in March it was \$3.80 to \$4.08.

TABLE 1  
U.S. CONSUMPTION AND CONSUMER STOCKS OF VANADIUM, BY FORM 1/

(Kilograms, contained vanadium)

	1996 p/		1997			
	January - December		March		April	
	Consumption	Stocks	Consumption	Stocks	Consumption	Stocks
Ferrovandium 2/	4,090,000	311,000	329,000 r/	382,000 r/	355,000	352,000
Oxide	13,400	6,610	1,120	6,780 r/	1,120	6,780
Vanadium-aluminum alloy	W	11,300	W	W	W	9,660
Vanadium chemicals 3/	W	W	W	W	W	W
Other 4/	396,000	5,460	39,900 r/	15,200 r/	39,700	5,460
Total	4,500,000	334,000	370,000 r/	404,000 r/	396,000	374,000

p/ Preliminary. r/ Revised. W Withheld to avoid disclosing company proprietary data; included with "Other."

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes other vanadium-iron-carbon alloys as well as vanadium oxides added directly to steel.

3/ Includes vanadates, chlorides and other specialty chemicals.

4/ Includes other vanadium alloys, vanadium metal, and items indicated by symbol "W."

TABLE 2  
U.S. CONSUMPTION OF VANADIUM, BY END USE 1/

(Kilograms, contained vanadium)

	1996 p/	1997		
	January - December	March	April	Year to date
Steel:				
Carbon	1,640,000	129,000	146,000	542,000
High-strength low-alloy	933,000	90,900	76,800	333,000
Stainless and heat-resisting	21,600	2,110	1,610	6,990
Full alloy	1,050,000	70,300 r/	81,200	308,000
Tool	409,000	W	W	167,000
Unspecified	--	--	--	--
Total steel	4,060,000	292,000 r/	306,000	1,360,000
Cast irons	W	W	W	W
Superalloys	17,300	1,730	1,180	5,720
Alloys (excluding steels and superalloys):				
Cutting and wear-resistant materials	245	20	20	82
Welding and alloy hard-facing rods and materials	W	W	W	W
Nonferrous alloys 2/	W	W	W	W
Other alloys	W 3/	--	--	--
Chemical and ceramic uses:				
Catalysts	W	W	W	W
Other 4/	W	W	W	W
Miscellaneous and unspecified	427,000	75,500	88,700	158,000
Total consumption	4,500,000	370,000 r/	396,000	1,520,000

p/ Preliminary. r/ Revised. W Withheld to avoid disclosing company proprietary data; included with "Miscellaneous and unspecified."

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes magnetic alloys, except for 1996.

3/ Magnetic alloys was included in this category for 1996.

4/ Includes pigments.

TABLE 3  
U. S. EXPORTS OF ALUMINUM-VANADIUM MASTER ALLOY, FERROVANADIUM AND  
VANADIUM PENTOXIDE (ANHYDRIDE) IN MARCH 1997 1/

(Kilograms, vanadium content unless otherwise specified)

Material and country	Quantity	Value	Year to date	
			Quantity	Value
Aluminum-vanadium master alloy: 2/				
Austria	--	--	13,800	\$161,000
Canada	9,090	\$118,000	21,300	266,000
China	15,000	265,000	15,000	265,000
Germany	--	--	4,990	98,100
Japan	--	--	1,050	13,700
Mexico	7,880	102,000	96,300	1,250,000
United Kingdom	21,100	366,000	54,100	933,000
Total	53,100	852,000	206,000	2,990,000
Ferrovanadium:				
Canada	27,000	600,000	63,700	1,420,000
Mexico	20,000	310,000	41,900	718,000
Total	47,000	910,000	106,000	2,140,000
Vanadium pentoxide (anhydride): 3/				
Austria	4,480	42,600	37,400	161,000
Belgium	49,000	397,000	65,200	530,000
Brazil	--	--	672	6,500
France	--	--	16,100	210,000
Germany	--	--	16,700	117,000
Italy	16,600	125,000	42,000	322,000
Korea, Republic of	32,400	256,000	32,400	256,000
Total	102,000	820,000	211,000	1,600,000

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Gross weight.

3/ May include catalysts containing vanadium pentoxide.

Source: Bureau of the Census

TABLE 4  
U. S. EXPORTS OF OXIDES AND HYDROXIDES OF VANADIUM AND VANADIUM METAL  
IN MARCH 1997 1/

(Kilograms, vanadium content unless otherwise specified)

Material and country	Quantity	Value	Year to date	
			Quantity	Value
Other oxides and hydroxides of vanadium:				
Canada	20,400	\$189,000	57,300	\$523,000
Colombia	698	10,500	698	10,500
France	452	4,020	452	4,020
Germany	--	--	11,500	102,000
Indonesia	4,000	51,900	4,000	51,900
Israel	--	--	1,260	11,200
Japan	12,900	115,000	13,700	122,000
Korea, Republic of	--	--	788	7,010
Mexico	2,820	25,100	2,820	25,100
United Kingdom	--	--	1,560	6,040
South Africa	20,200	208,000	40,400	405,000
Total	61,500	604,000	134,000	1,270,000
Vanadium metal, including waste and scrap: 2/				
Canada	650	17,700	650	17,700
Japan	30	4,160	30	4,160
United Kingdom	--	--	580	16,400
Total	680	21,800	1,260	38,200

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Gross weight.

Source: Bureau of the Census.

TABLE 5  
U.S. IMPORTS FOR CONSUMPTION OF ALUMINUM-VANADIUM MASTER ALLOY, FERROVANADIUM AND  
VANADIUM PENTOXIDE (ANHYDRIDE) IN MARCH 1997 1/

(Kilograms, vanadium content unless otherwise specified)

Material and country	Quantity	Value	Year to date	
			Quantity	Value
Aluminum-vanadium master alloy: 2/	--	--	--	--
Ferrovandium:				
Austria	--	--	13,700	\$224,000
Canada	84,300	1,370,000	244,000	3,970,000
China	13,200	201,000	129,000	1,930,000
Czech Republic	15,700	253,000	31,700	482,000
Germany	--	--	3,700	72,300
Japan	--	--	225	13,700
South Africa	70,000	1,160,000	100,000	1,620,000
Total	183,000	2,990,000	523,000	8,310,000
Vanadium pentoxide (anhydride): 3/				
South Africa	65,400	693,000	160,000	1,860,000

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Gross weight.

3/ May include catalysts containing vanadium pentoxide.

Source: Bureau of the Census.

TABLE 6  
U.S. IMPORTS FOR CONSUMPTION OF OTHER OXIDES AND HYDROXIDES OF VANADIUM AND VANADIUM  
METAL, INCLUDING WASTE AND SCRAP IN MARCH 1997 1/

(Kilograms, vanadium content unless otherwise specified)

Material and country	Quantity	Value	Year to date	
			Quantity	Value
Other oxides and hydroxides of vanadium:				
South Africa	36,000	\$566,000	76,900	\$1,130,000
Vanadium metal, including waste and scrap: 2/				
Germany	485	5,610	3,840	53,300
Russia	8,500	88,900	9,820	151,000
United Kingdom	1	1,530	1	1,530
Total	8,990	96,100	13,700	206,000

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Gross weight.

Source: Bureau of the Census.

TABLE 7  
U.S. IMPORTS FOR CONSUMPTION OF VANADIUM-BEARING ASH, SLAG AND RESIDUES IN MARCH 1997 1/

(Kilograms, vanadium pentoxide content)

Material and country	Quantity	Value	Year to date 2/	
			Quantity	Value
Ash and residues:				
Canada	--	--	17,800	\$9,730
Mexico	--	--	149,000	334,000
Total	--	--	167,000	344,000
Ash and residues (not from the manufacture of iron and steel):				
Canada	106,000	23,400	488,000	110,000
Slag, from the manufacture of iron and steel:				
South Africa	--	--	288,000	1,150,000
Other residues: (Not advanced in value)				
Canada	--	--	7,410	6,530

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ May include revisions to previous month's data.

Source: Bureau of the Census.

TABLE 8  
U.S. IMPORTS FOR CONSUMPTION OF MISCELLANEOUS VANADIUM CHEMICALS IN MARCH 1997 1/

(Kilograms, vanadium content)

Material and country	Quantity	Value	Year to date	
			Quantity	Value
Sulfates:	--	--	--	--
Vanadates:				
Germany	--	--	11,000	\$151,000
South Africa	--	--	22,400	159,000
Total	--	--	33,400	310,000
Hydrides and nitrides:	--	--	--	--

1/ Data are rounded to three significant digits; may not add to totals shown.

Source: Bureau of the Census.